Fig. 1

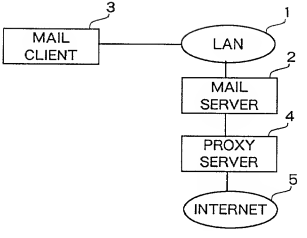

3
MAIL CLIENT
1
LAN
2
MAIL SERVER
4
PROXY SERVER
5
INTERNET

Fig. 2

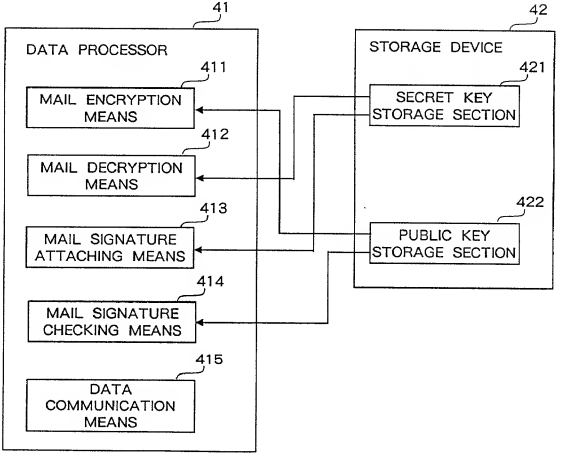

41
DATA PROCESSOR
411
MAIL ENCRYPTION MEANS
412
MAIL DECRYPTION MEANS
413
MAIL SIGNATURE ATTACHING MEANS
414
MAIL SIGNATURE CHECKING MEANS
415
DATA COMMUNICATION MEANS
42
STORAGE DEVICE
421
SECRET KEY STORAGE SECTION
422
PUBLIC KEY STORAGE SECTION

Fig. 3

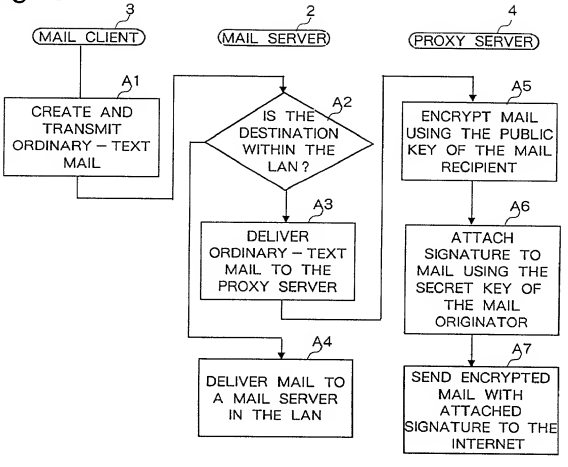

3
MAIL CLIENT
2
MAIL SERVER
4
PROXY SERVER
A1
CREATE AND TRANSMIT ORDINARY – TEXT MAIL
A2
IS THE DESTINATION WITHIN THE LAN ?
A3
DELIVER ORDINARY – TEXT MAIL TO THE PROXY SERVER
A4
DELIVER MAIL TO A MAIL SERVER IN THE LAN
A5
ENCRYPT MAIL USING THE PUBLIC KEY OF THE MAIL RECIPIENT
A6
ATTACH SIGNATURE TO MAIL USING THE SECRET KEY OF THE MAIL ORIGINATOR
A7
SEND ENCRYPTED MAIL WITH ATTACHED SIGNATURE TO THE INTERNET

Fig. 4

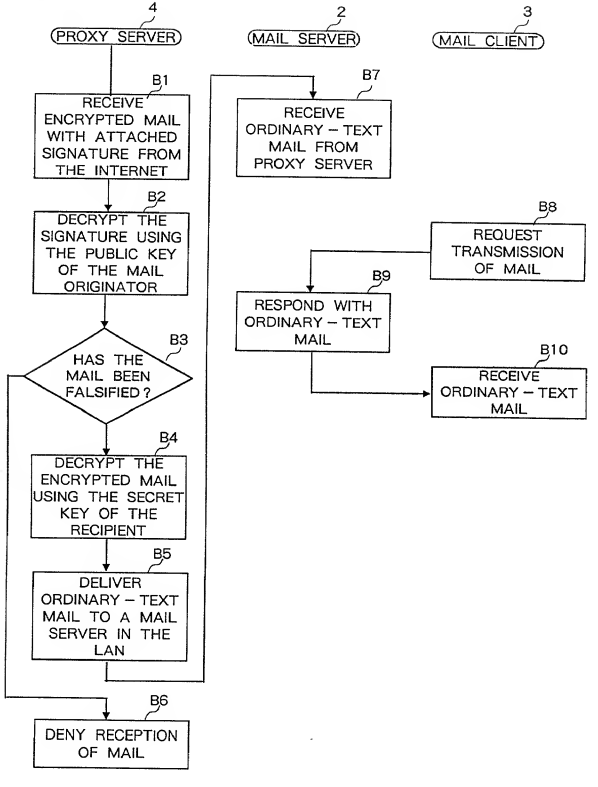

4
PROXY SERVER
2
MAIL SERVER
3
MAIL CLIENT
B1
RECEIVE ENCRYPTED MAIL WITH ATTACHED SIGNATURE FROM THE INTERNET
B2
DECRYPT THE SIGNATURE USING THE PUBLIC KEY OF THE MAIL ORIGINATOR
B3
HAS THE MAIL BEEN FALSIFIED ?
B4
DECRYPT THE ENCRYPTED MAIL USING THE SECRET KEY OF THE RECIPIENT
B5
DELIVER ORDINARY – TEXT MAIL TO A MAIL SERVER IN THE LAN
B6
DENY RECEPTION OF MAIL
B7
RECEIVE ORDINARY – TEXT MAIL FROM PROXY SERVER
B8
REQUEST TRANSMISSION OF MAIL
B9
RESPOND WITH ORDINARY – TEXT MAIL
B10
RECEIVE ORDINARY – TEXT MAIL

Fig. 5

| ELECTRIC – MAIL ADRESS | SECRET KEY |
|---|---|
| t – azuma @ nec.cojp | 101 ••• 001 |
| h – kubota @ nec.cojp | 100 ••• 100 |
| ••• | ••• |

Fig. 6

| ELECTRIC – MAIL ADRESS | SECRET KEY |
|---|---|
| t – azuma @ nec.cojp | 110 ••• 011 |
| h – kubota @ nec.cojp | 101 ••• 110 |
| u – suzuki @ abc.com | 111 ••• 001 |
| i – sato @ nec.co.us | 111 ••• 101 |
| ••• | ••• |

Fig. 7

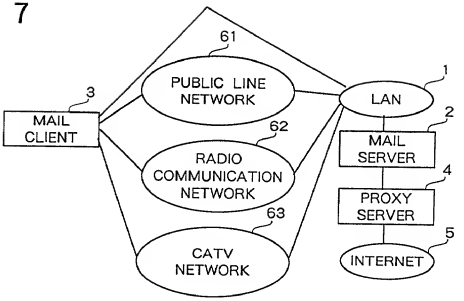
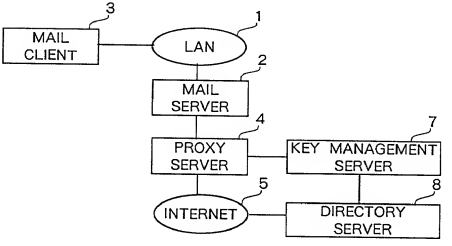

61
PUBLIC LINE NETWORK
3
MAIL CLIENT
62
RADIO COMMUNICATION NETWORK
63
CATV NETWORK
1
LAN
2
MAIL SERVER
4
PROXY SERVER
5
INTERNET

Fig. 8


3
MAIL CLIENT
1
LAN
2
MAIL SERVER
4
PROXY SERVER
7
KEY MANAGEMENT SERVER
5
INTERNET
8
DIRECTORY SERVER